

## ABSTRACT

An agile optical beam profiler using a two-dimensional small tilt digital micromirror device/chip, a translation stage, and single photodetector or pair of photodetectors. A method of profiling an optical beam includes positioning a programmable spatial light modulator in an incident optical beam and sequentially moving the spatial light modulator to at least one position in a first planar direction in a displacement increment less than a pixel width of the spatial light modulator. The method also includes directing respective portions of the optical beam to a photodetector at each position of the spatial light modulator. The method may also include calibrating the photodetectors by directing a portion of the beam to the photodetector, then directing the entire beam, or a remaining portion of the beam, to the photodetector, and normalizing the detected power of the portion with the detected power of the entire beam, or remaining portion, respectively.